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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,098

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Edwin Ijpeij

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4833

23117

7590

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NIXON & VANDERHYE, PC  
901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER

LU, C CAIXIA

ART UNIT

PAPER NUMBER

1796

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,098	<b>Applicant(s)</b> IJEIJ ET AL.	
	<b>Examiner</b> Caixia Lu	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 6,7,10 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/30/06</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

#### Claim 1

(i) The terms “phosphinimine ligand” (Y=N-) and “phosphinimine ligand compound” (Y=NH) are different and “phosphinimine ligand” should not be use to describe “phosphinimine ligand compound”.

(ii) The format of the selective group for “R<sup>1j</sup>” and “R<sup>2j</sup>” are improper because Markush terminology requires the phrase “selected from the group consisting of” and the connector “and” between the last two members. See MPEP 2173.05 (h).

(iii) In lines 18 and 19 respectively, the symbol “R<sub>2j</sub>” should replaced with “R<sup>2j</sup>”.

#### Claim 6

(i) The use of term “or” throughout the claim is ungrammatical and improper, and proper corrections are requested.

(ii) In line 2, a “carboxylate” is a weak organic base and it can not be used to define “inorganic base”.

(iii) In lines 4-5, it is not clear what kind of base “their alkoxide or phenoxide” is referred to.

#### Claim 16

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The limitation of "in the presence of between 5 and 10 equivalents of imine ligand according to formula 1" does not make any sense here.

3. Claims 13-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the process for the preparation of an polyolefin by contacting the catalyst according to the process of claim 1 with an olefin monomer, does not reasonably provide enablement for the process for the preparation of a polyolefin without such a contacting process. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The step of contacting the catalyst according to the process of claim 1 with an olefin monomer is the essential step of the olefin polymerization process; however, such a step is missing in the claimed polymerization process.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 8, 9, 11, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over von Haken Spence et al. (US 6,355,744) in view of Gao et al. (CA 2,261,518) and Nielsen et al. (US 2004/0010142).

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The instant claims are directed to a process for making phosphinimine ligand containing metal-organic compound by contacting the HA adduct of a phosphinimine compound with a metal-organic reagent in the presence of at least 2 equivalents of a base.

von Haken Spence teaches the preparation of phosphinimine ligand containing titanocene complex by reacting tri-*t*-butyl-phosphinimine with *n*-BuLi in about 1:1 molar ratio (col. 8, lines 20-32, Synthesis 2) or by reacting tri-*t*-butyl-phosphinimine with triethylamine in about 1:10 ratio (col. 8, lines 20-32, Synthesis 3).

It is noted that the phosphinimine is used directly in von Haken Spence rather than the salt form of the aminophosphonium halides. However, neutralizing the aminophosphonium halide with a base such as NaOH, NaOMe and BuLi to provide the phosphinimine ligand compound is conventional practice since the salt form is more stable and readily available and such is demonstrated in Gao, see page 3, the last paragraph. When aminophosphonium halide is used, at least two equivalents of base should be used, the first equivalent of base is for releasing phosphinimine from aminophosphonium halide and second equivalent of base is for removing H from Y=N-H to provide Y=N<sup>-</sup> to react with the metal center and form the phosphinimine ligand in the metal-organic compound. Since triethylamine is a stronger base than Y=N-H, one would also have expected that triethylamine to react with aminophosphonium halide to form phosphinimine and (Et<sub>3</sub>NH)<sup>+</sup>Cl<sup>-</sup>.

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It is noted that the Gao does not expressly list all the bases which can be used to react with the aminophosphonium halides for providing the phosphinimine. Nielsen teaches that bases such as alkyl lithium and alkyl magnesium halide are functionally equivalent (col. 5, [0077]). It is also noted the by products of the reaction between aminophosphonium halide and alkyl lithium or alkyl magnesium halide are alkane and metal halide and those by-products do not interfere with the olefin polymerization. Therefore, it would be an option to use the catalyst directly without separating the catalyst from the reaction mixture.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Gao's aminophosphonium halide to von Haken Spence's phosphinimine ligand containing metal-organic compound preparation process since phosphinimimium halide is more stable and readily available and in the absence of any showing criticality and unexpected results.

***Allowable Subject Matter***

6. Claims 6, 7, 10 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

von Haken Spence does not teach or reasonably suggest the limitation of the instant claims. For example, von Haken Spence does not that inorganic base such as NaOH and  $K_2CO_3$  to be suitable for the preparation of phosphinimine ligand containing compound. On the contrary, that base should be avoided since those bases will react with aminophosphonium halide to form

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H<sub>2</sub>O by-product which is likely to interfere the formation of phosphinimine ligand containing compound.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached on 9:00 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Caixia Lu/  
Caixia Lu, Ph. D.  
Primary Examiner  
Art Unit 1796